

Original Research

Usability and User Acceptance of PointPhysio for Promotive Physiotherapy Services: A Cross-Sectional SUS-TAM Study

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ABSTRACT

Background: Digital access is expanding the reach of physiotherapy, yet a platform that is clinically relevant but difficult to use or poorly accepted is unlikely to be sustained in community practice. This study evaluated the usability and user acceptance of PointPhysio, a digital platform for promotive physiotherapy, using the System Usability Scale (SUS) and the Technology Acceptance Model (TAM).

Methods: A cross-sectional system-evaluation study included 100 participants (50 physiotherapy students and 50 community participants) who completed five standardized PointPhysio task scenarios followed by the 10-item SUS and TAM measures of perceived ease of use (PEOU), perceived usefulness (PU), attitude toward using (ATU), and behavioral intention (BI). Descriptive statistics, internal-consistency analysis, Pearson correlations, and standardized linear regression were used.

Results: The mean SUS score was 77.35 ± 8.45 , and 85.0% of participants scored at least 68. Task completion ranged from 84% to 95%. Mean PEOU, PU, ATU, and BI scores were 4.03, 4.16, 3.98, and 4.04, respectively. PEOU and PU were significant predictors of BI, whereas ATU was not independently associated with BI after adjustment for the other TAM constructs.

Conclusion: PointPhysio demonstrated favorable perceived usability and generally positive technology acceptance. The findings support prioritizing simple navigation, clear feature benefits, and task-level interface refinement when integrating digital tools into promotive physiotherapy and community movement-health education.

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INTRODUCTION

Digital technologies are increasingly incorporated into physiotherapy to support education, self-management, exercise delivery, communication, and remote follow-up.

Their value, however, depends on more than the availability of digital content. Users must be able to navigate the system efficiently, understand the purpose of its features, and perceive a meaningful benefit from continued use. Recent studies of physiotherapy and rehabilitation applications show that usability, clarity of instruction, therapist support, and fit with user needs are central to engagement with digital care (Arensman et al., 2022; Grodon et al., 2024; Merolli et al., 2024).

Promotive physiotherapy extends the profession beyond treatment of established impairment by supporting physical activity, movement-health literacy, functional capacity, ergonomic awareness, and prevention of avoidable musculoskeletal problems. Physiotherapists are therefore positioned not only as rehabilitation providers but also as facilitators of healthy movement behavior across the lifespan (Bello et al., 2022; Corey et al., 2023). Digital delivery may broaden this role by enabling accessible education and guided self-management outside conventional face-to-face services.

A clear research gap remains. Most evaluated physiotherapy applications have been developed for patients with established musculoskeletal, neurological, or other rehabilitation needs, and relatively few patient-facing applications have published formal scientific evaluations (Merolli et al., 2024). User-centered work has also concentrated on condition-specific rehabilitation, including Achilles tendinopathy, arthritis, neuromuscular disease, and neurorehabilitation (Domnik et al., 2026; Gell et al., 2024; Merry et al., 2024; Veneman et al., 2024). Evidence is therefore limited for community-oriented platforms whose primary purpose is promotive physiotherapy, movement-health education, and prevention in users who are not necessarily receiving rehabilitation for a diagnosed condition.

Usability and acceptance address complementary questions in this context. SUS provides a concise overall appraisal of perceived system usability and has continued to demonstrate useful psychometric performance in digital-health settings (Khan et al., 2025). TAM evaluates whether users perceive a technology as easy to use and useful and whether those perceptions translate into a favorable attitude and intention to use it. Contemporary health-application studies and instrument adaptations support the relevance of these domains for digital-health acceptance (Cheah et al., 2022; Park et al., 2024). Combining both approaches allows technical interaction and behavioral acceptance to be examined after the same user experience.

PointPhysio was developed as a digital platform for promotive physiotherapy and movement-health education. Its features include posture education, self-exercise videos, and promotive consultation intended to help users understand and act on movement-health information. Before broader community implementation, the platform requires evidence that users can complete core tasks, perceive the interface as usable, recognize practical benefit, and express willingness to use the system again. Indonesian studies of health applications further indicate that ease of use, usefulness, and technical stability are important determinants of adoption (Damanik et al., 2024; Putra et al., 2024).

Accordingly, this study had three specific objectives: (1) to quantify PointPhysio task performance and overall usability using SUS; (2) to describe user acceptance through PEOU, PU, ATU, and BI; and (3) to examine relationships among usability and TAM constructs, including predictors of behavioral intention. The novelty of the study is the integrated SUS-TAM evaluation of a community-oriented promotive physiotherapy platform rather than a condition-specific rehabilitation application. This approach contributes implementation-oriented knowledge on how interface usability and perceived value jointly shape readiness to adopt digital movement-health services.

MATERIALS AND METHOD

A cross-sectional observational system-evaluation design was used because usability and technology acceptance were measured once, immediately after participants interacted with the same PointPhysio prototype. The study was conducted in the working area of the Surakarta City Health Office, Central Java, Indonesia, and data collection was completed over a two-month field period in 2026. The study population comprised the two target-user groups defined in the protocol: physiotherapy students and community participants. Recruitment continued until the predefined 1:1 group allocation was achieved, yielding 50 participants in each group ($n = 100$). For a three-predictor regression model, a sample of 100 also exceeds the approximate sample needed to detect a medium effect at $\alpha = 0.05$ and 80% power, providing an adequacy check for the planned analysis. For analysis, participants were required to complete the PointPhysio evaluation and provide complete SUS and TAM responses; incomplete evaluations were not included in the analytical dataset. PEOU, PU, and ATU were treated as explanatory TAM variables, BI as the principal acceptance outcome, and SUS score and task-completion measures as usability outcomes.

Each participant received a standardized introduction to PointPhysio and then completed five predefined task scenarios. The protocol explicitly included navigation of posture-education content, access to self-exercise videos, and use of promotive-consultation features; two additional tasks assessed other navigation functions in the same platform workflow. Task completion was coded as completed (1) or not completed (0), and total completion time for the five-task sequence was recorded in minutes. Participants completed the SUS and TAM questionnaires immediately after the task trial.

Usability was measured with the 10-item System Usability Scale using a five-point Likert response format. Item scoring followed the standard SUS transformation: 1 was subtracted from responses to odd-numbered items, even-numbered responses were subtracted from 5, and the summed contribution was multiplied by 2.5 to obtain a 0-100 score. A score of 68 was used as a pragmatic interpretive reference rather than a diagnostic cut-off. Recent psychometric evidence supports SUS as a concise measure of digital-system usability (Khan et al., 2025), and health-application research has used adapted SUS formats with favorable validity and reliability (Cheah et al., 2022). Technology acceptance was assessed using an Indonesian TAM questionnaire based on established TAM domains and contemporary health-application adaptations (Cheah et al., 2022). The field instrument contained four items for each construct—PEOU, PU, ATU, and BI—rated on a five-point Likert scale. The Indonesian wording and content relevance were reviewed through expert judgment before data collection. In the present sample, internal consistency was evaluated using Cronbach's alpha and is reported with the study results.

Participant characteristics and task performance were summarized using frequencies and percentages, whereas continuous outcomes were described using mean, standard deviation, median, and range as appropriate. Cronbach's alpha was calculated for SUS and each TAM construct. Pearson correlation examined bivariate associations between SUS and TAM scores. Standardized linear regression was used sequentially to examine PEOU as a predictor of PU; PEOU and PU as predictors of ATU; and PEOU, PU, and ATU as predictors of BI. Statistical significance was set at $p < 0.05$. Analyses were performed in Python using standard statistical libraries.

The study protocol was reviewed and declared ethically approved by the Research Ethics Committee (Komisi Etik Penelitian), Universitas 'Aisyiyah Surakarta, under Ethical Clearance No. 0357/IX/AUEC/2026; the certificate was issued on September 16, 2026. The approved research location was the working area of the Surakarta City Health Office. Participants received information about the study procedures, confidentiality, voluntary participation, and the right to withdraw, and informed consent was obtained before participation. The official ethics approval certificate is provided as a supplementary file.

RESULTS

All 100 participants included in the analysis completed the PointPhysio evaluation and provided analyzable SUS and TAM responses. The sample had a mean age of 31.91 ± 13.23 years (range 18-60 years). Sixty-eight participants (68.0%) were women and 32 (32.0%) were men. The two planned user groups were equally represented, with 50 physiotherapy students and 50 community participants. Participant characteristics are summarized in Table 1.

Table 1. Participant characteristics (n = 100)

Variable	Frequency	Percentage / SD
Age, years (mean $\pm$ SD)	31.91	13.23
Age range, years	18–60	—
Sex		
Women	68	68.0%
Men	32	32.0%
Participant group		
Students	50	50.0%
Community participants	50	50.0%

Task-completion rates ranged from 84% to 95%. Scenario 1 had the highest completion rate (95%), whereas scenario 5 had the lowest (84%). Mean total completion time was 8.56 ± 1.78 minutes. The mean SUS score was 77.35 ± 8.45 , with a median of 77.50 and a range of 55.0-97.5; 85 participants (85.0%) obtained a SUS score of at least 68. Task performance and SUS results are presented in Table 2.

Table 2. Task performance and System Usability Scale results

Measure	Value	Additional information
Task scenario 1 completed	95 (95.0%)	Highest completion
Task scenario 2 completed	88 (88.0%)	
Task scenario 3 completed	90 (90.0%)	
Task scenario 4 completed	93 (93.0%)	
Task scenario 5 completed	84 (84.0%)	Lowest completion
Total completion time, minutes	8.56 ± 1.78	Mean $\pm$ SD
SUS score	77.35 ± 8.45	Mean $\pm$ SD

Measure	Value	Additional information
SUS median	77.50	
SUS range	55.0–97.5	
SUS ≥ 68	85 (85.0%)	

Mean TAM scores were close to 4 on the five-point scale. PU had the highest mean score (4.16 ± 0.42), followed by BI (4.04 ± 0.37), PEOU (4.03 ± 0.42), and ATU (3.98 ± 0.41). Cronbach's alpha was 0.60 for SUS, 0.48 for PEOU, 0.45 for PU, 0.52 for ATU, and 0.35 for BI. These coefficients indicate limited internal consistency, particularly for the TAM constructs, and the inferential findings should therefore be interpreted cautiously. Descriptive statistics and reliability estimates are shown in Table 3.

Table 3. Descriptive statistics and internal consistency of SUS and TAM constructs

Measure	Mean	SD	Cronbach's alpha
System Usability Scale	77.35	8.45	0.60
PEOU	4.03	0.42	0.48
PU	4.16	0.42	0.45
ATU	3.98	0.41	0.52
BI	4.04	0.37	0.35

SUS was positively correlated with PEOU ($r = 0.381$; $p < 0.001$), PU ($r = 0.364$; $p < 0.001$), ATU ($r = 0.200$; $p = 0.046$), and BI ($r = 0.299$; $p = 0.003$). In standardized regression, PEOU predicted PU ($\beta = 0.368$; $p < 0.001$; $R^2 = 0.135$). PEOU ($\beta = 0.227$; $p = 0.018$) and PU ($\beta = 0.375$; $p < 0.001$) predicted ATU ($R^2 = 0.255$). For BI, PEOU ($\beta = 0.326$; $p = 0.001$) and PU ($\beta = 0.291$; $p = 0.004$) were significant predictors, whereas ATU was not independently significant ($\beta = 0.048$; $p = 0.628$); the model explained 28.8% of the variance in BI. Regression results are presented in Table 4.

Table 4. Standardized regression models for Technology Acceptance Model constructs

Outcome	Predictor	β	p-value	R^2	Interpretation
PU	PEOU	0.368	<0.001	0.135	Significant
ATU	PEOU	0.227	0.018	0.255	Significant
ATU	PU	0.375	<0.001	0.255	Significant
BI	PEOU	0.326	0.001	0.288	Significant
BI	PU	0.291	0.004	0.288	Significant
BI	ATU	0.048	0.628	0.288	Not significant

DISCUSSION

PointPhysio achieved a mean SUS score of 77.35, and 85% of participants scored at least 68, indicating generally favorable perceived usability. This result is consistent with recent evaluations showing that digital physiotherapy tools can attain acceptable usability when navigation, instructions, and task flow are sufficiently clear (Putra et al.,

2024; Veneman et al., 2024). The task-level findings add practical information beyond the global SUS score: completion was high across all scenarios, but the lower rate for scenario 5 identifies a specific workflow that should be prioritized for interface review.

Technology-acceptance scores were also generally positive, with PU showing the highest mean. PEOU predicted PU and, together with PU, contributed to BI. This pattern is compatible with contemporary TAM research in health applications, where perceived simplicity and perceived benefit are repeatedly associated with willingness to use digital services (Damanik et al., 2024; Park et al., 2024). ATU was not independently associated with BI after PEOU and PU were considered. Because the internal-consistency coefficients for the TAM constructs were low in this sample, these regression estimates should be interpreted as exploratory rather than as definitive validation of the causal structure of TAM.

The study extends previous digital-physiotherapy research by evaluating a platform designed primarily for promotive and preventive movement-health services rather than rehabilitation of a specific diagnosis. Existing studies have largely involved patients receiving musculoskeletal, neurological, or home-exercise rehabilitation (Arensman et al., 2022; Gell et al., 2024; Grodon et al., 2024; Merry et al., 2024). Integrating SUS with TAM therefore offers a useful implementation perspective: usability indicates whether users can interact with PointPhysio, while acceptance measures indicate whether they perceive sufficient value to consider continued use for posture education, self-exercise, and other promotive functions.

For physiotherapy practice, the findings support maintaining a simple interface, making the benefit of each feature immediately understandable, and revising tasks with lower completion rates before wider community deployment. PointPhysio should complement, rather than replace, physiotherapist guidance by extending movement-health education and self-management support beyond direct encounters. The positive association between usability and acceptance also suggests that UI/UX refinement may have behavioral relevance, because reducing interaction effort can strengthen perceived usefulness and intention to use the platform.

Several limitations require consideration. The cross-sectional design captures acceptance immediately after platform use and cannot establish sustained adoption or behavioral change. Participants were drawn from two predefined user groups within one geographic setting, which limits generalizability. More importantly, internal consistency was below conventional expectations for several TAM constructs, so the acceptance model should be re-evaluated after instrument refinement or confirmatory psychometric testing. Future studies should combine repeated usability testing with actual usage logs and evaluate whether PointPhysio improves movement-health literacy, self-efficacy, physical-activity adherence, or preventive behavior over time.

CONCLUSION

PointPhysio showed favorable usability, with a mean SUS score of 77.35 and 85.0% of participants meeting or exceeding the reference score of 68. Users also reported generally positive technology-acceptance scores. PEOU and PU were the most consistent predictors of behavioral intention, although the low internal consistency of several TAM constructs warrants cautious interpretation and further instrument refinement. Taken together, the findings support continued development of PointPhysio as a digital adjunct for promotive physiotherapy, particularly through simplified

navigation, clearer communication of feature benefits, and targeted improvement of lower-performing task flows before broader community implementation.

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